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# *TROPICAL CLOUD BEHAVIOR – OBSERVATIONAL APPROACHES FOR MODEL VALIDATION*

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**ABSTRACT**

To aid in improving model parameterizations of clouds and convection, we examine how cloud macroscale characteristics and microphysical properties in the Tropical Western Pacific depend on cloud type and the stage of the cloud life cycle. These analyses focus on the period surrounding the Tropical Warm Pool International Cloud Experiment (TWP-ICE). We determine the life cycle stage using a modified version of the Boer and Ramanathan (1997) satellite cloud-tracking algorithm, which we are enhancing by adding a neural network analysis of cloud texture features to the identification procedure. The algorithm enhancements enable identification of cloud regimes (e.g., Rossow et al., 2005), convective regimes (i.e., active monsoon, dry monsoon, and break period), and have also shown some skill in identifying precipitation regimes (i.e., shallow convective, deep convective, stratiform, and non-precipitating thick anvil). We plan to use these observations to provide the environmental context for microphysical retrievals from the millimeter-wave cloud radar (MMCR) and the C-band polarimetric radar (C-POL) at the Atmospheric Radiation Measurement Climate Research Facility at Darwin. We will explore a method to match these observations properly with simulated fields for validation of regional and climate models.

References

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